Yuqun Wu

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Education

University of Illinois at Urbana-Champaign Champaign, USA
Doctor of Philosophy in Computer Science *Aug 2023 - Present*

- Advisor: *Prof. Derek Hoiem*

Master of Science in Computer Science (thesis) *Aug 2022 - May 2023*

- Advisor: *Prof. Derek Hoiem*, *Prof. Shenlong Wang*

Bachelor of Science in Computer Science & Statistics *Jan 2020 - Dec 2021*

- Highest Honors at graduation, Dean's list for all years, GPA: 4.0/4.0

Sun Yat-sen University Guangzhou, China
Bachelor of Science in Mathematics *Sep 2016 - Dec 2019*

Research Experience

University of Illinois at Urbana-Champaign Champaign, USA

Multiview Scene Interpretation without Relying on 3D Models *Apr 2024 - Present*
Advisor: Prof. Derek Hoiem, Prof. Shenlong Wang

- Project targets a sparse and efficient 3D representation that enables feedforward scene understanding tasks without explicit geometry from multi-view images or video inputs

Region-based Representations Revisited *Sep 2023 - Nov 2023*
Advisor: Prof. Derek Hoiem - ***CVPR 2024***

- Project targeted at investigating new representation by combining SAM regions and dense features to solve various vision tasks, including semantic segmentation, object retrieval, video classification, and scene segmentation
- Responsible for implementation of feature extraction and pooling pipelines, and scene segmentation application on ScanNet

Improving Neural Radiance Fields with Patch-based Monocular Guidance *Jan 2023 - May 2023*
Advisor: Prof. Derek Hoiem, Prof. Shenlong Wang - ***3DV 2025***

- Project aimed to create 3D models that provide accurate geometry and view synthesis, partially closing the large geometric performance gap between NeRF and traditional MVS methods
- Proposed appearance regularization of normalized cross-correlation (NCC) and structural similarity (SSIM) between randomly sampled novel and training view to improve general performance

Plenoptic PNG: Real-Time Neural Radiance Fields in 150 KB *Aug 2022 - Dec 2023*
Advisor: Prof. Derek Hoiem, Prof. Shenlong Wang - ***3DV 2025***

- Project presented Quantized Fourier Features, which encoded a 3D scene into an extremely compact representation from 2D images and enabled its transmittance, decoding, and rendering in real-time across various platforms.
- Assisted in blending Quantized Fourier Features into different network setups, running experiments, and writing the paper.

Sparse SPN: Depth Completion from Sparse Keypoints *Sep 2021 - Nov 2022*
Advisor: Prof. Derek Hoiem

- Project draw attention to single view depth completion taking point cloud from SFM as input
- Proposed a novel method that outperforms existing depth completion pipelines given sparse keypoint depth, and reconstructed complete point clouds given SfM setup

GRIT: General Robust Image Task Benchmark *Jun 2021 - Aug 2021*

Advisor: Prof. Derek Hoiem

- Rendered surface normal of object-centric and scene-centric datasets, and split them into training, validation, and testing sets
- Trained a baseline network with training sets, and compare it with several other pretrained state-of-the-art normal estimation networks with testing sets
- Challenge Organizer of the 2nd workshop on Open World Vision of CVPR 2022

University of California San Diego Remote

Lighting completion from sparse lighting samples *Jun 2022 - Sep 2022*

Advisor: Prof. Manmohan Chandraker

- Project aims at recovering per-pixel spatially-varying lighting maps taking single color image and sparse lighting samples
- Investigated 2D lighting completion methods with differentiable rendering and compare to pure RGB-based estimation networks

Activities

Conference Reviewer Champaign, USA

ECCV, WACV *2024*

Teaching Assistant Champaign, USA

University of Illinois at Urbana-Champaign *Aug 2022 - May 2023*

- Course: *CS 445 Computational Photography*, *CS 441 Applied Machine Learning*

Summer Research Experience for Undergraduates (REU) Champaign, USA

University of Illinois at Urbana-Champaign *May 2021 - Aug 2021*

- Attended weekly seminars covering research skills, presentation skills

Skills

- **Programming Languages**: Python, C/C++, JavaScript, R
- **Other Tools**: Git, Pytorch, Latex